



Books of
knowledge
for children

Animal World



A richly illustrated exploration
of the jungle life

Wonder World Series

*BOOKS OF KNOWLEDGE
FOR CHILDREN*

ANIMAL WORLD

Edited by :

ANNIE DAVIS M.A. Litt.



VASAN PUBLICATIONS

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1. How is the animal kingdom grouped ?

Scientists have divided the animals into two groups - the **Protozoa** and the **Metazoa**.

The **Protozoa** are the simplest members of the animal kingdom. They are very tiny unicellular or single-celled animals. Examples of such animals are the amoeba and the paramecium.

The **Metazoa** consists of animals which are multi-celled. They have more than one cell and have symmetrical bodies. This group is further sub-divided into the **Vertebrates** and the **Invertebrates**.

The **Invertebrates** are those animals which do not have a backbone. They are divided further into different groups:

	Group	Example
1.	Porifera	Sponge
2.	Coelenterate	Jelly fish, Coral, Sea anemone
3.	Platyhelminthes	Tapeworm, Flatworm
4.	Nematode	Roundworm
5.	Annelida	Earthworm, Leech
6.	Mollusca	Snail, Octopus, Clam
7.	Arthropoda	
	a). Chilopoda	Centipede
	b). Crustacea	Prawn, Crab, Wood louse
	c). Insect	Butterfly, Beetle, Wasp, Ant
	d). Arachnida	Mite, Scorpion, Spider
8.	Echinoderma	Sea urchin, Starfish
9.	Urochordata	Sea squirt

The **Vertebrates** are those animals which possess a backbone. This group too has subdivisions. They are :

	Group	Examples
1.	Pisces	Fishes
2.	Amphibian	Frog, Toad, Salamander
3.	Reptiles	Lizard, Snake, Crocodile, Tortoise, Turtle
4.	Aves	Eagle, Ostrich, Parrot, Hen, Duck
5.	Mammals	Man, Dog, Lion, Whale, Platypus

2. What is the classification of animals with regard to their eating habits ?

Animals can be broadly divided into three categories depending on their diet. They are :-

1). **Herbivorous Animals**

2). **Carnivorous Animals**

3). **Omnivorous Animals**

Herbivorous

Animals are those animals that feed directly on plants. The largest herbivorous animal is the elephant. Other examples are



the deer, rabbit, cow, giraffe, kangaroo, monkey, squirrel, parrot and pig.

Carnivorous Animals

are those that feed on other animals. Examples of such animals are the lion, tiger, fox, otter, shark, crocodile, frog, dog, owl, eagle, snake and crab.

Omnivorous Animals

are those animals that can eat plants as well as animals. Examples are bear, baboons, crow, peafowl and earthworm.



3. How are animals categorised according to their body temperature ?

All animals require a certain amount of body heat to survive. However this requirement differs in different animals. They are therefore divided into two types - **Cold blooded animals** and **Warm blooded animals**.

Cold Blooded Animals :- These animals do not have the mechanism for temperature control. Their temperature rises and falls with the environment. They are sluggish on cool days. In winter they enter a state of torpor (hibernation) from which they do not emerge until the warmer weather arrives months later. Examples of such animals are the reptiles, amphibians and fishes.

Warm Blooded Animals :- On the other hand, these animals can control their body temperature to a certain level. Their blood acts as a conveyor of this mechanism. Examples are

mammals and birds.

There are some mammals which hibernate during extreme winters. Their body temperature drops considerably. They become dormant. During this time they do not even require food.

4. What are the distinct features of Protozoan animals?

The simplest members of the animal kingdom are unicellular or single celled animals. Examples of such animals are the amoeba and the paramecium.

The amoeba is found in the mud at the bottom of ponds. It can be seen with the naked eye as a whitish speck. It reaches a maximum length of about $1/100$ inch. It is an irregular, jelly like mass. The name amoeba is derived from the Greek *amoebe* which means change. If the amoeba is examined under a microscope the shape is seen to be continually changing.

The paramecium too is found in muddy pools and stagnant puddles. It is the same size of that of the amoeba. However it has a definite shape. It's shape resembles that of a slipper.

Both the amoeba and the paramecium breathe through the surface of their body. They feed on bacteria and other micro-organisms or decayed remains of plants.

5. What do you mean by Molluscans ?

The Molluscan family is a large family of animals consisting of about 75,000 species. Their bodies are soft, but they have a hard shell to protect themselves. They have muscular feet for movement. Their blood is generally colourless. Some of them however, have red, green or blue blood. Molluscans breathe through their gill or air sacs. Their digestive system is fully developed and kidneys help in excretion. These animals are generally unisexual.

Molluscans are found in rivers, canals, lakes and seas. Some

species are also found on land. Examples of molluscans are the snail, slug, squid and octopus. The octopus however, doesn't have a shell. The



Snail

giant squid is the largest molluscan and the largest invertebrate too. It can weigh upto 2 tonnes and is about 15 metres long.

6. Does the insect family really form the largest group in the animal world ?

The insects constitute the largest number in the animal world. There are about 5 million species of insects. Examples of insects are the housefly, butterfly, beetle, honeybee, mosquito, grasshopper, cockroach, ant, termite and silverfish. Most insects pass through a complex metamorphosis in course of their life history.

The head of an insect bears a pair of antennae which serves as the organs of touch, taste and smell. The head also has two compound eyes which provide proper vision and two or three simple eyes which detect light or darkness. The mouth may have biting or chewing jaws or piercing and sucking structures. The head also has the brain which connects with nerve cords all over the body.

The middle part of the body, the thorax, has three pairs of jointed legs which has sticky pads or claws at the end. The thorax has one or two pairs of wings or none at all in some cases.

The abdomen or the end part of the body contain the systems

of digestion, excretion and reproduction.

The insect does not have an inner skeleton. However their bodies are covered with an exoskeleton.

7. Which are the animals that belong to the Crustacean group ?

Crustacean is the name given to the group of animals which includes lobsters, shrimps, prawns, crabs, crayfish, hermit crab, barnacles and water fleas. They inhabit the sea, ponds rivers and lakes. Some species also live on land.

The crustaceans have a crust like exoskeleton and jointed legs. Their head and thorax are a joint structure. They have two compound eyes and two antennae which act as feelers. Crustaceans breathe through gills. They feed on dead fish and other decaying animal remains. They also eat sea weed.

8. What do you mean by the Piscean family ?

All species of fishes are included in the Pisces family. Around 30,000 species of fishes have been identified till date. They inhabit the sea, rivers, lakes and ponds.

The fish is a cold blooded animal and a vertebrate. Fish breathe with the help of gills. They have two pairs of nostrils which enable them to smell. Fish are well equipped for hearing. They have two tiny holes on either side of the head leading to the inner ear. These ears are not very effective for hearing but are used more for maintaining balance. They have another mechanism to help them pick vibrations. Along each side of their body is a line of little pores called the lateral line. This contains sensory cells which help provide information from the vibrations it picks up.

One characteristic feature of the fish is that they possess fins. The fins are of different types and help in swimming, steering and balancing.

The female fish lays thousands of eggs, (in some cases millions). This is to off-set the high mortality rate of the young fish. Which are devoured by predators.



Fish

The shark is known as the king of fishes. Other fishes are the ray, sailfish, cod, sardine, dogfish, eel, catfish, salmon, mackerel, anglerfish, sea horse, swordfish and pike.

9. What is special about Amphibians ?

In this family we find toads, frogs, salamanders, newts and caecilians. These animals evolved some 3.5 million years ago.

The name Amphibia refers to the fact that these animals pass through an immature stage during which they reach the adult stage. As adults they breathe with lungs and are able to live on land. The eggs of the amphibians are laid in the water. The young one which is hatched in a few days resembles a fish in body shape. It also breathes through gills. As it grows, limbs and lungs are developed slowly. As it's tail slowly shrinks, it leaves the water for the land. It is no longer herbivorous but feeds on worms and insects which it catches with its tongue.

The skin of the amphibian is smooth, soft and moist. The toad however, has dry, warty skin. Amphibians are cold blooded

creatures and therefore hibernate underground to protect themselves from extreme cold and heat. During hibernation, all their biological activities are slowed down considerably.

10. What are the distinct characteristics of reptiles ?

Reptiles include lizards, snakes, crocodiles, alligators,



tortoises and turtles. There are about 5000 species of these cold blooded creatures.

Unlike the amphibians who resort to water to lay their eggs and pass through a fish like larval stage, the reptiles lay their eggs on land. The young ones which hatch out of the eggs are miniature replicas of their parents.

Reptiles breathe with the help of lungs. Their skin is covered with dry scales. Most reptiles have two pairs of limbs which do not fully support the body from the ground. They therefore sprawl and wriggle along the ground using their tails as well as their limbs for movement. Their toes are clawed.

Reptiles are found in seas, rivers, lakes, ponds and on land. They are carnivorous animals and feed on fish, birds, frogs, small mammals and sometimes even man.

11. What are the characteristic features of birds ?

The three classes of living animals which have made a success of flying are birds, bats and insects. Of these the birds are the most adapted for life in the air. Research has revealed that birds evolved from reptiles.

M o s t flying birds have lightly built, stream - lined bodies which enables them to move effortlessly in the air. Most flightless birds are however heavy and large.



Birds

One of the characteristic features which distinguishes birds from other invertebrates is that they possess feathers. These form a covering for keeping the bird warm and dry. The feathers overlap each other and point backwards for smooth flight.

The jaws of the bird forms a beak. The shape of the beak depends upon their diet. In the same way, the claws of the birds are also adapted to their diet and lifestyle. They are sharp, hooked, strong, webbed or blunt.

The neck of the bird is very flexible thereby helping it to preen feathers on all parts of the body. The nostrils are two small slits on the upper part of the beak, but their power of smell is poorly developed. They however have keen sense of sight and hearing.

Compared to other animals, birds have the wonderful capacity of adjusting their eyes very quickly from a distant object to a nearby object.

Their ears are two small little holes on either side of the head. As they are covered by feathers, they are not easily visible. However their sense of hearing is very sharp and they use it for hunting, self-protection and mating purposes.

Birds are warm-blooded creatures. They do not hibernate. However several species migrate to warmer climates during the cold months. They cover long distances across continents, some of the migrating birds are the swallow, goose, duck, swan and tern.

The smallest bird is the bee-humming bird, while the largest is the ostrich which weighs 180 kg.

12. Why are mammals considered to be the most developed animals ?

The highest group of animals is mammals. The most intelligent mammal is man. Other examples of mammals are the lion, elephant, dog, giraffe, whale, kangaroo, bat, platypus, anteater, seal and the hippopotamus.



Mammals

Mammals have been named so because of their mammary glands. The females secrete milk from their mammary glands to feed their young ones. Milk is the natural food for new born

mammals.

Like birds, mammals have also descended from reptiles, but along a different line. Like birds, mammals are warm blooded and breathe with the help of lungs. Mammals have hair to protect their bodies from cold, with the exception of whale and hippopotamus, which have hardly any hair. Mammals have sweat glands which help to get rid of body waste, cooling the body in the process.

The shape and number of the teeth in mammals show great diversity and are related to their diet.

The mammals are the only vertebrates to possess a diaphragm, which is a muscular membrane dividing the chest cavity and the abdominal cavity.

The brain of mammals is more highly organised than any other animal. It is very developed and large.

Mammals give birth to their young, which develop in a cavity inside the mother's body. There are some exceptions like the platypus and the spiny anteater. They are the link with the reptiles from which mammals have evolved. These animals lay eggs unlike the other mammals.

13. Which are the 10 heaviest mammals in the world ?

	Animal	Weight (in Kg.)
1.	Blue Whale	190,000
2.	African Elephant	5,000
3.	Indian Elephant	4,000
4.	White Rhinoceros	2,200
5.	Hippopotamus	2,000
6.	Giraffe	1,200
7.	Crocodile	1,100
8.	Asian Gaur	900
9.	Indian Bison	800
10.	Kodiak Bear	800

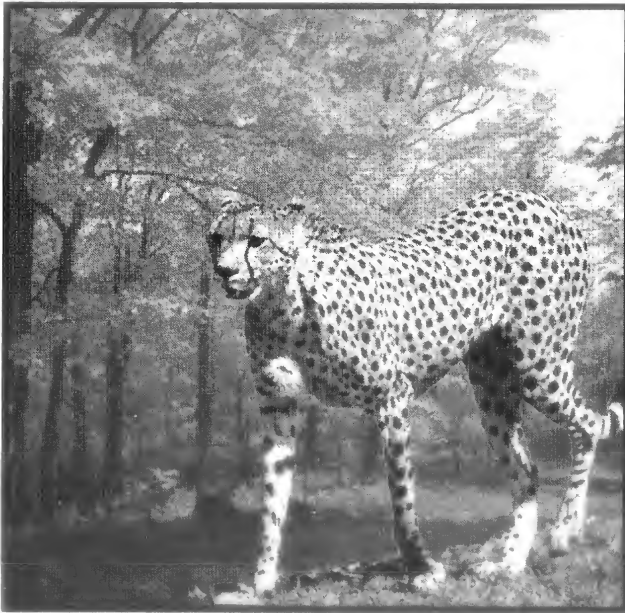


Whale

14. Which are the fastest and slowest animals ?

The fastest of all creatures is the spine tailed swift. The ostrich is the fastest bird on legs and has a speed of 80 kmph. The fastest mountain climber is the chamois. It can climb 1000m in 15 minutes. At this rate it can climb Mount Everest in just over 2 hours.

Mammals	kmph	Fish	kmph	Birds	Kmph
1. Cheetah	112	Sailfish	110	Spine tailed swift	171



Cheetah

2. Gazelle	92	Swordfish	92	Frigate bird	153
3. Pronghorn		Marlin	80	Spurwinged	
Antelope	90			goose	142

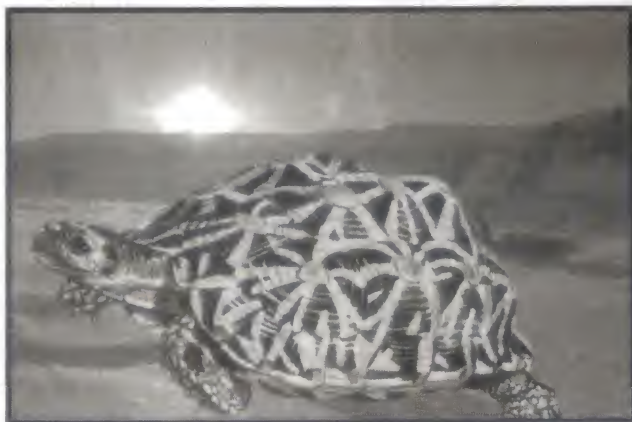
4. Lion	88	Great Blue	Red breasted
		Shark	69
5. Brown Hare	75		Merganser
			129
			White rumped
			swift
			124
6. Deer	72		Canvas back
			duck
			116
7. Fox	70		Eider duck
			113
8. Horse	64		Teal
			109
9. Zebra	64		Mallard
			105
10. Greyhound	64		Pintail
			105
11. Man	43		
12. Elephant	35		

The slowest animals are :

The common garden snail 0.83 m per minute.

Sloth 2.10 m per minute.

Giant tortoise 4.57 m per minute.



Tortoise

15. Which are the most intelligent of animals ?

Animals generally survive on instinct. It is something natural to them and does not have to be taught or learnt. For example, a duckling swimming, a newly hatched spider spinning a web, a butterfly flying or a kitten suckling its mother.

Intelligence, however, is the ability of an animal to connect facts. This also involves memory. Man is of course the most intelligent of all animals. The next most intelligent animals are :-

1. Chimpanzee
2. Gorilla
3. Orangutan
4. Baboon
5. Gibbon
6. Monkey
7. Small-toothed whale
8. Dolphin
9. Elephant
10. Dog



Chimpanzee

16. Which bird lays the largest and smallest eggs ?

The Ostrich lays the largest egg. It weighs 1.80 kg. It is 20 cm in length and 15 cm in diameter (about the size of 40 hen's eggs).

The smallest egg belongs to the Vervain hummingbird. It is 9 mm long and weighs only 0.36 gm.

17. How does sight differ in animals ?

Man has two eyes but there are other animals which have more or even less !

One-eyed animals - The Euglena, which is a protozoan, has only one eye.

Four eyed animals - The four eyed fish seems to have four eyes. Actually there are only two eyes. Each of is them split into two. This is to help them to look above the water level for insects as well as below, to escape predators.

Five-eyed animals - There are some insects which have five eyes. They have three simple eyes and two compound eyes. Compound eyes consist of thousands of minute eyes packed closely together. Examples of such insects are the butterfly and the honeybee.

Eight-eyed animals - The maximum number of eyes found in animals is eight. This is found in the wolf spider.

Of all the animals, the birds of prey like the eagle and owl, have the sharpest sense of sight.

18. What is the average lifespan of animals ?

Each living being on this earth has its own particular lifespan. Some have a very long lifespan while others have very short ones. Some types of bacteria buried under snow or salt have been known to live for millions of years.

Animals	Maximum Age
	(in years)
Quahog (Marine clam)	200
Giant Tortoise	152
Man	118

Greek Tortoise	110
Killer Whale	90
European Eel	88
Lake Strugeon	82
Sea Anemone	80
Elephant	78
Andean Condor	70
Japanese Salamander	55
White Pelican	51
Ostrich	50
Lobster	50
Hippopotamus	40
Rhinoceros	40
Bear	34
Horse	30
Beetle	30
Spider	28
Lion	25
Dog	22
Monkey	20
Rattlesnake	18
Cat	13-15
Rat	2-3
Shrew	12-18 months
Mayfly	1 day



Fly

19. How do baby birds and reptiles breathe inside their eggs ?

The eggs of birds and reptiles are one of the greatest inventions in packaging! The egg contains the albumen and the egg yolk. Within the egg yolk is the fertilised egg cell or embryo which slowly develops into the baby bird or reptile. As it develops, it feeds on the albumen and the yolk. The egg shell is made so well that it holds the liquids so that the inside doesn't dry up. At the same time the egg shell is porous enough to allow the gases to pass in and out. That is how the baby inside breathes till it is old enough to break out of it's shell.

20. Which are the poisonous snakes in the world ?

Scientists have studied about 2400 varieties of snakes. Of them only about 200 are poisonous. In India only 4 of around 200 species are found to be poisonous. They are the cobra, krait, saw scale viper and Russell's viper.

Some of the poisonous snakes in other parts of the world are the rattlesnake, copperhead, cotton mouth moccasin, water moccasin, Eastern diamond back, Harlequin snake and coral snake.

Snakes have poison glands located on both sides of the head, a little below their eyes. They have two fangs on their upper jaw, which have holes. Poison passes from the poison glands to the fangs through a tube.



Snake

It is easy enough to identify poisonous snakes. The cobra with its hooded head is easily distinguished. Their hoods have 'V' shaped signs on them. The kraits have white stripes on their back. The stripes are sharp towards the tail and faint towards the head. The vipers are dark brown and have diamond shape on their back.

Snakes generally do not attack unless provoked. Always take care when walking through thick high grass. Never step on dry logs or mounds of dry leaves. A snake might be resting under it. Again, never push your hand or foot inside a hole in a ground or in a tree. It could be a snake's nest. When walking in high grass take a long, strong stick and keep tapping it a few feet in front of you. The vibrations caused by the stick on the ground frightens away the snake.

Some snakes are not poisonous but yet are dangerous. The python, anaconda and the common boa squeeze and crush the body of the victim and then swallow it whole. The stomach of

these snakes produce powerful digestive juices that can break down even big bones of the victim.

21. How do you differentiate between a moth and a butterfly ?

Butterflies and moths belong to the same group called the 'Lepidoptera' which means 'scaly wings'. Both have scales on their wings and bodies. Their lifestyles too are very similar. Both lay hundreds of eggs on the leaves of plants. From these emerge caterpillars. These become pupae after 2 months before changing into delicate-winged insects after 2 months.



Butterfly

The major difference between a butterfly and a moth is that butterflies love to flutter around in the morning sunshine while the moths are night creatures. There are also some species of moths that fly in the morning.

Another difference is, the butterfly has a slender body and the moth a thick one. When butterflies are at rest they hold their wings straight above them. Moths hold their wings flat on each side of their bodies.

Both have antennae or feelers from their heads. The antennae of the butterfly is knobbed or clubbed at the tips while the moth has pointed and hairy antennae.

22. Why do frogs and toads croak ?

The croaking and 'singing' of frogs and toads are mainly done during the mating season. It is the male frog or toad that croaks. This sound is made by the male using the vocal sacs of the floor of its mouth. This croaking seems to attract and excite the female frog.

23. What is the speciality of Platypus ?

The platypus is a water loving animal which is found in the rivers and streams of Australia. The platypus has been placed in the category of mammals. However it is one of the most peculiar and primitive of mammals. Scientists feel it is the link between mammals and reptiles.

Like other mammals, the platypus is a warm-blooded creature. It also has hair covering its body.



The female platypus digs a hole on the river bank and layers it with dry leaves. She then lays two eggs which hatch after about two weeks. The babies then feed on their mother's milk, which is secreted from

the mother's mammary glands. The platypus therefore lays eggs like the reptile but suckles her young like the mammal.

This strange animal also has a duck like bill and webbed feet. The platypus has the best of both worlds, for it enjoys life on the land as well as in the water. It feeds on small fish.

24. What is the difference between a frog and a toad ?

The frog and the toad are very similar in baby structure and lifestyle. Both lay eggs in water. The toad lays a string of eggs while the frog lays eggs in a mass. Once hatched, they follow a similar method of development to adulthood.

The toad unlike the frog does not frequent the water except to breed. The body of a toad is oval in shape and is about half as broad as it is long. Frogs are more slightly built with the body somewhat pointed at both ends.

The toad has dry skin covered with warts. It is brownish in colour with irregular dark patches. Frogs have smooth slimy skin.

The toad possesses no teeth though small simple teeth are found in the upper jaw of the frog. Frogs are seen to be better hoppers than toads.



Frog

25. How do snakes hear ?

Snakes do not have ears or ear openings outside the body like us. They have inner ears inside the head.

When an animal or person walks, vibrations are caused. These pass through the earth to the body of the snake. The vibrations pass through the skin and muscles of the snake to a bone connected to its inner ear. This bone passes the vibrations to the ear, which 'hears' them.

Likewise snakes also hear sounds or vibrations that travel through the air. Their skin, muscles and bone carry the vibrations to the inner ear. Of course the vibrations that travel in the air are not as clear as that travel on the ground.

26. Why does a snake's tongue flash out ?

When a snake crawls, its tongue flicks in and out. This action is very useful to the snake.

The tongue of the snake is a very important sense organ. The snake has no fingers and toes with which to feel. The tongue has a sense of

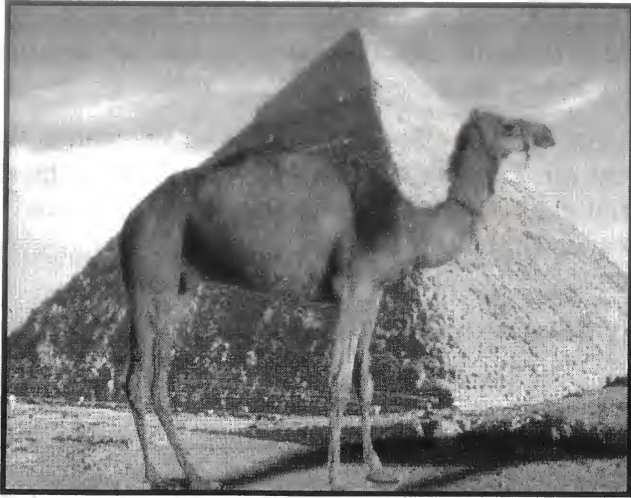


touch and takes the place of fingers and toes. The snake can smell with its nose but the tongue helps the nose as it too has the sense of smell.

The sense of touch and smell in the tongue helps the snake to find its food. It also helps the snake to search for another snake in the mating season.

27. What do camels store in their humps ?

It is commonly believed that the camel does not require food and water regularly. However this is not true. Like other animals the camel also needs food and water regularly.



Camel

The camel has a big hump on its back. This stores fat which is used as a source of energy during its long journey in the desert. The hump weighs about 45 kg.

The stomach of the camel has 2 bags which store water. When it is thirsty and is not able to find water, it uses this stored water. The camel thus survives the long desert journey on the strength of this stored fat and water. It is noticed that after a long journey the hump becomes 'loose' as the fat has been used up. It is again replenished after some time. Did you know that a thirsty camel can drink up to 100 liters of water in 5 minutes.

28. Which is the smallest mammal ?

The smallest mammal is the shrew. They look like mice but are much smaller. They weigh about 2-3 grams! It grows to a

length of 1.5 inches and has a tail of about an inch. The shrew also has the shortest life-span of a mammal. They live for only a year or so.

Few people have seen the shrew as they are mostly in hiding. Shrews have a great appetite. In fact they have the greatest appetites amongst all mammals. They can eat its own weight in a single meal. In fact we should say that, a greedy man eats like a shrew not like a pig as we generally say.

29. How does a wall lizard break off its tail ?

The wall lizard is able to break off or detach its tail whenever it wants. The bones of the tail are joined loosely so it separates easily. When it separates it does not lose much blood because the ends of the blood vessels are sealed. In a few days the tail grows back in place.

The lizard detaches its tail when it is attacked by its enemies. The broken tail keeps wriggling for some time. This startles and confuses the enemy. In the meantime the lizard escapes. This technique thus helps the lizard in its protection.

30. How is it that the singing of the cuckoo (keel) signifies the onset of spring ?

The cuckoo (or keel) is famous for its melodious song. Did you know that it is the male cuckoo which sings beautifully and not the female?

The male and female cuckoos look very different in colour. The male is black and shiny while the female is ash coloured with white spots. The cuckoos mate during the spring season. During this time the male cuckoo sings to attract the female bird. Once their mating is over the male stops singing. The cuckoo mates during the spring season and they sing only during the mating period. This is why we associate the singing of the cuckoo with spring.

The cuckoos unlike most other birds do not build nests to hatch their eggs. Instead they lay their eggs in a crow's nest. The crow does not suspect any thing as the eggs looks similar to its own. Once the cuckoo lays its eggs, it flies to the dense forests as it prefers large dark trees. We only hear its singing in spring when it comes out to the open fields and grounds for mating.

31. Are animals colour-blind ?

We tend to think that animals can differentiate colours like us. However, that is not true. The majority of animals are colour-blind and cannot tell one colour from the other. They see things in different shades of black and grey. The bull charges the bull fighter in the arena not because of the red cloth that the man displays but for other reasons. Other than the ape, man is the only mammal that can differentiate colours. The colour blindness of animals does not trouble them much as their sense of smell and hearing are very sharp.

Birds however can differentiate colours. Have you noticed that the male birds are always more beautifully coloured than the females ? This is to attract them into mating.

The bees too are able to differentiate colours. They are attracted to brightly coloured flowers and collect nectar from them, in the process helping in pollination.

32. Why is the whale called a mammal even though it resembles a fish ?

The whale is a marine animal. That means it lives in the water. However it is very different from the fish. In fact it is more mammalian in its features than piscine.

The whale, like other mammals, gives birth to young ones. Fish, on the other hand, lays eggs. The whale suckles its young ones like all mammals.

Like all mammals, the whale breathes with the help of its lungs and not gills. It is warm-blooded unlike fish.

The blue whale is the biggest and heaviest of all mammals. It can grow to about 30 meters and weigh about 190,000 kgs. In comparison the Indian elephant weighs only 4,000 kg.

33. How is honey made by bees ?



The bees feed on honey. In fact it is their food. The bees make endless trips to flowers. During each trip they suck up the nectar in the base of the flower. The nectar which is sucked up by the bee passes through the oesophagus (or gullet) to the honey sac of the bee. This honey sac is separated from its actual stomach. In the honey sac the nectar loses a certain amount of water. The sugar of the nectar also undergoes a chemical

change. The bee then deposits this honey in the cells of its hive. This honey is still watery. The worker bees stand near the entrance of the hive and jam their wings. This causes a current of air to enter and leave the hive thus helping in evaporation of the excess water.

This honey which is rich in protein is then fed to the queen daily. The worker bees receive it for 3 days only. It is the difference in feeding which makes the difference in their size.

34. How do spiders weave their webs ?

The spider is a very fascinating creature. In fact it is a highly skilled engineer and can create wonderfully designed webs. Some are wheel shaped. Others are funnel shaped. Spiders are known to be the friends of the farmers as they trap the insects which would otherwise harm the crops.

Spiders weave webs so as to entrap their prey. The flies or other such insects which fly into the web get stuck to it. As they struggle to escape they get more entangled in it. The spider then feeds on them.

The abdominal glands of the spider produce a certain liquid. This liquid flows out of a small opening in the top of the abdomen. As it flows out in the form of a fine thread it solidifies when it comes into contact with the air. With this the spider quickly weaves its web.

It is surprising that the spider never gets entangled in its own web. This is because its legs are covered with a certain oily substance which prevents them from sticking.

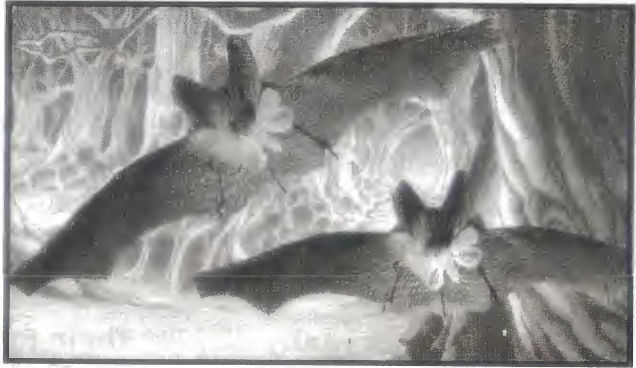
However not all spiders weave webs. The bird-eating spider is one of the largest spiders and lives in the Amazon River region. Its body measures upto 15 cm and with their outspread legs to about 25 cm. These spiders hide in a cavity or crack and emerge to hunt at night. They capture their prey by pouncing on them suddenly. They feed on small birds and mammals.

35. Do bats really feed on blood ?

Bats feed on fruits. There is one species of bats which feeds on blood. This species is known as the vampire bat. They live in tropical America and feed on the blood of cows, horses, goats, dogs or even a sleeping man.

Vampire bats make a small cut with their sharp front teeth on the flesh of the animal. They then lap up the blood which

flows out. Their saliva has a special anti-clothing agent which prevents the blood from hardening.



Bats

During this time the victim continues to sleep unaware of the bat. Only a small amount of blood is sucked by the vampire bat from each animal. It requires only about 30 g. of blood every night. These bats are however responsible for transmitting the rabies disease to their victims.

The white winged vampire feeds only on birds.

36. What are sea-horses ?



Sea Horse

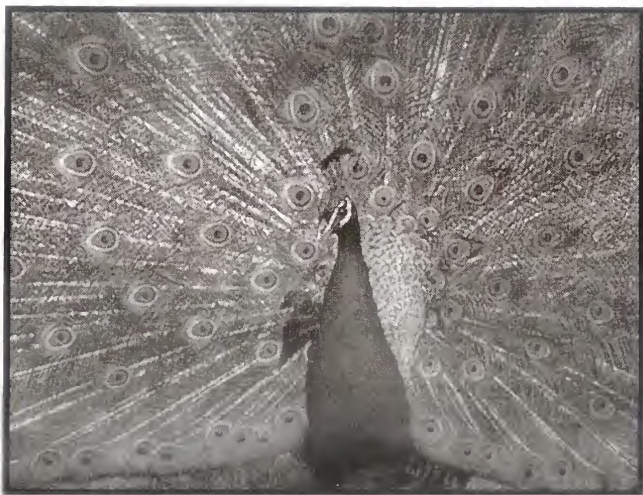
Sea horses are a kind of bony fish. Its head resembles that of a horse. Its tail is like that of a snake. Its body is covered with rough bony plates. Sea horses vary in

size from 10 cms. to 30 cms. There are about 100 species of sea horses. They are found in oceans all over the world. They are varied in colour like white, red, blue and yellow.

The sea horse swims in an upright position and is a slow swimmer. It would take about two and a half days to cover just a kilometer. Sea horses are quite safe from other sea creatures as they are not very tasty !

37. Do peacocks really display their feathers when it rains ?

A peacock with its beautiful features displayed out in a fan is a wonderful sight. We were led to believe that it does do to show its pleasure when it rains. However this is not true.



Peacock

Peacocks display their colourful features to attract the female. The peacock lifts its tail upward and forward. He then dances about slowly shaking his feathers and letting out high pitched screams.

The female, which is smaller, is known as the peahen and together they are known by peafowl. The male species found in India and Sri Lanka have blue feathers and a metallic blue-green body. The ones found in South-East Asia have green feathers and

a green and bronze body. The hens of both are green and brown in colour. They do not have the colourful feathers or crown of their male counterparts.

Peafowl live in open forests. At night they roost in tall trees. They are omnivorous eating small animals and plants. They can also eat young snakes like the cobra.

38. Which bird is the most dangerous in the world ?

The Cassowary is said to be the most dangerous bird. It is found in Northern Australia and New Guinea. It is a flightless bird but can run at a great speed of 30 miles an hour on its powerful legs. It grows to a height of 6 feet and weighs about 180 pounds.

The female Cassowary lays about three to six eggs and it is the male bird which incubates them. The Cassowary has a long helmet like structure on its head and coarse hair-like feathers cover its body. When it wants to attack or protect itself it leaps up and kicks with its legs. Its inner toe has a long dagger like claw which can slash and rip the enemies' body. Thus it can kill big animals and even a man very easily.



Cassowary :
The most
dangerous bird

39. Which is the world's most poisonous animal ?

We generally think that snakes are the most poisonous of animals. However more deadlier than them is the sea-wasp, which is a kind of jelly-fish. The sea-wasp is found in the shallow waters of Northern Australia, Atlantic Ocean and in the Indian Ocean.

The sea-wasp is colourless and has a bell shaped body with about 50 tentacles. Each of these tentacles have about 750,000 stringing cells capable of injecting venom into their enemies or prey. Any creature which brushes against those tentacles is immediately injected with this venom. Pain and a burning sensation is caused followed by death in five minutes. The venom of the sea-wasp is highly toxic and can kill even men in minutes. So one has to be careful while swimming in the shallow waters where sea-wasps drift about.

40. What is peculiar about the sloth bear ?

The sloth bear found in tropical South America has a peculiarity which sets it apart from other animals. It spends its entire life in an upside down position

Like the bat, the sloth bear too sleeps on trees in an upside-
d o w n
p o s i t i o n .
Their muscles
are fixed so
that they do
not fall down.
H o w e v e r
these sloth
bears do
everything
upside down.
They move
about very
slowly on the



Bear

trees in this way with their claws hooked on to the tree. They eat, mate and even give birth in this position.

The sloth bear has the ability to turn its head fully round. It hardly has a tail but is covered with thick hair. This hair is covered with green algae which provides an excellent camouflage. The sloth is herbivorous and feeds on leaves and buds of the trees.

There are two species of sloth bear : the two - toed and the three - toed variety.

41. What are sea-cows ?

The sea-cow is a mammal found in the sea. It is herbivorous and feeds on the sea weeds and plants. There are four species of the sea-cow. One is the Dugong and the other three are called Manatees. The first one has a notched tail while the Manatees have round, paddle shaped tails.

The Dugong species are generally found in the Indian Ocean and Northern coasts of Australia. They grow to about 9 feet in length.

The Manatees are found in North America, South America and West Africa. They grow to about 15 feet in length and weigh about 500 pounds.

The sea-cow's face resembles a man and so people sometimes mistake them for 'mermaids'. Their front limbs are flipper shaped. Like all mammals they give birth to young ones and suckle them. They breathe with the help of lungs. They live in herds and are slow moving animals.

42. Why do dogs hang out their tongues when they feel hot. ?

All mammals are warm blooded and heat is produced in our bodies. Under the human skin there are sweat glands. The sweat comes out through the tiny pores and evaporates thereby cooling



Dogs

the body.

Dogs, like several other mammals, do not have this system to cool their bodies. They have a different mechanism to c o o l themselves. When they feel hot, they hang their tongues out. They pant and breathe in air through their nose and give

out air through the mouth. When the mouth is open the saliva in it evaporates. This produces a cooling effect.

Do you know how the elephant cools itself? It keeps flapping its huge ears and thus gets rid of excess body heat.

43. How does an earthworm see or hear ?

Earthworms are found in the surface layers of moist soil which is rich in humus. They spend the day time underground in their burrows and crawl out at night in search of food.

An earthworm has no eyes but can tell when it is near the surface, for its front end is sensitive to bright light. An earthworm has no ears either but it is able to perceive vibrations in the soil and so will not venture from its burrow while a bird is hopping about overhead.

An earthworm tunnels its burrow partly by force and partly by eating its way through the soil. It feeds on decayed animals and plant remains in the soil which is swallowed. The soil is ground up by a part of its food canal known as the gizzard. The finely powdered soil is then passed out of the body forming little heaps at the entrance of its burrow. These are known as worm casts.

Earthworms are important to the farmer as their burrowing activities help to loosen the soil. This helps the roots of plants to go down easily and also allows the entry of rain water and air into the soil.

44. Why do cats arch their backs and hiss ?

A cat arches its back and hisses when alarmed or frightened. In most cases it does not want to attack the enemy. It pulls itself up and hisses to make itself look bigger and more menacing. The enemy is startled by this sudden action. That is when the cat makes its escape.

Hissing is the cat's way of threatening enemies or warning its kittens. This sends the kittens scurrying back to their nest.

Many animals use similar techniques to frighten off their enemies: Dogs, lizards, birds and even rabbits.

45. What are the main characteristics of an ostrich ?

The ostrich is the largest of all birds and weighs about 150 kg. It also has a record of laying the largest eggs which are about 120 cm. long and 15 cm. in diameter. The ostrich is a flightless bird. However, it is the fastest bird on legs with a speed of 80 kmph. It has a peculiar habit of running round in circles.

The ostrich is a native of Africa. The male has a height of about 2.5 m. The female is comparatively smaller. The legs, which are two-toed, are long and strong and its large body seems precariously balanced on them. Its neck is lengthy and at the end

of it is a small head with a short beak. Its eyes are large with long eyelashes.

The brain of the ostrich is smaller than its eyes but that does not mean it is a stupid bird. In fact, it is quite intelligent. Scientists no longer believe in the myth that the ostrich buries

its head in the sand in times of danger. Instead it sits and stretches its neck along the sand. The predator passes by thinking it is just a mound of dry leaves. The ostrich uses the same method when guarding its eggs.

The female ostrich is dull brown in colour while the male is black. They use this colour difference very effectively as they take turns in guarding their eggs. The female sits over the eggs during the day time so that its feathers blend into the surrounding environment. At night, the black male guards the eggs.

The ostrich is herbivorous and lives on grass, leaves and fruit. Like several other birds, it eats small stones and pebbles to help in digestion. Ostriches have been known to eat shiny objects like glass pieces and metallic objects like jewellery and watches.

Ostriches are being farmed for their meat and beautiful feathers. Even their hide is used to make good quality leather. In



Ostrich and its eggs

some places they are also trained to pull carts. However domesticating the ostrich is very difficult as it is a very aggressive bird. It attacks with a very powerful kick which can easily break one's bones. So farmers have to be very careful when approaching it.

The ostrich lives in a family group of one cock and several hens. Each of the hens lays about 14 eggs.

46. What are the different species of rats ?

The rat is a very versatile and tough animal. It has a phenomenal capacity to survive in the most difficult situations. It was noticed that after nuclear tests, the rats in the area seemed the fittest and healthiest.

Rats are larger than mice and usually have scaly, naked tails. There are several species of rats.

The brown rat is about 20 cm. with a tail of almost equal length. These rats originated in Central Asia. Now they have spread throughout the world. Thanks to ships which transported them to all corners of the world.

The black rat, responsible for plagues, is smaller than brown rat. It has, however, larger ears, a longer nose and a pointed snout. They do not interbreed with brown rats.

The pack rat or wood rat is common throughout North America. There are about 7 different species of this kind. Their dens are made of partly eaten plants, dung and miscellaneous objects.

Rats have a very flexible body and can squeeze in through tiny holes, climb vertical surfaces, burrow the earth, jump as high as 1 metre and jump down from a height of 15 metre. They can swim at least a mile and can chew through live electrical cables. They can kill another animal which is twice their size. Rats seem to be very intelligent. They are awfully cautious, wary and shrewd.

Rats are supposed to have killed more than 25 million people – a quarter of the population of Europe – during the infamous Black Death. In 1348 rats travelling in ships from Black Sea to Genoa brought the plague bacterium on fleas that lived on its hair. The Plague lasted for more than 3 years resulting in a horror that changed the history of the world. Rats still are responsible for spreading diseases like typhus, trichinosis, Lassa fever and Salmonella.

Great damage is done to property by rats as they gnaw through them. Rats pillage tons of food grains stored in the granaries. They devour potatoes, bananas, carrots and other produce in the fields. It is very difficult to eradicate the rat menace as they multiply very quickly. A female rat can reproduce and have at least 15,000 descendants in a year!

It seems rats have only one useful quality in them that is of value to man. They are excellent animals for the research laboratory where new drugs can be tested on them. Rats being tough, versatile, quick reproducers and having ability to eat 'anything' are the favourite animals for experimentation.

47. Is cockroach a pest ?

There are about 3,500 species of cockroaches in the world, most of which are found in the tropics.

The common cockroach found in human dwellings contaminates food and is a great nuisance. The American or German cockroach are also pests in kitchens, bakeries and warehouses. There were only 2 species originally found in Britain but due to import of food and migration, several other species have been introduced there.

The domesticated species of cockroaches are omnivorous and can eat any sort of food. They are particularly fond of sweet and starchy food. In the absence of food, they feed on clothing, paper, books and even shoes. Thus they are severe pests in most households.

The cockroach is a nocturnal insect. It hides in dark cupboards and drawers and comes out only when it is dark. That is why if we happen to switch on the light in a dark kitchen at night, we can see them scurrying away into dark corners.

The cockroach has a flat body and is able to squeeze into the narrowest gaps and crevices. It has two long antennae for feeling and smelling its way in the dark. Its large eyes are not of much use. It has two pairs of wings which are used very rarely for flying.

The female cockroach lays the eggs in a horny, purse like egg case. She carries it around for some time beneath her abdomen till she deposits it by sticking it on a surface. The egg case contains about 16 eggs in 2 rows. The 'nymphs' that hatch out of these eggs are identical to the adult cockroach except that they are wingless, smaller and pale in colour. As they feed and grow older they become darker. They cast off their skin six or seven times during their growth period. This ceases when their development is complete. This process is known as incomplete metamorphosis. The butterfly, on the other hand, has a complete metamorphosis.

Man has invented several sprays and poisons for killing cockroaches but he has never been able to eradicate them fully. They continue to come out from nooks and corners. They devour and contaminate our food and crawl all over our homes spreading diseases.

INTERESTING INFORMATION

About 10,000 new animal species are being discovered every year.

The bee hummingbird of Cuba is the smallest *warm blooded* creature. It is only 2.25" long and weighs less than 2 gm.

The Compsognathus is the smallest dinosaur. It measured slightly more than half a metre in length and weighed around 3 kg.—the weight of a large hen.

About 100,000 species of extinct animals have been identified by scientists from their fossil remains.

The Baluchitherium was the largest terrestrial mammal ever to have walked on this earth. Its length was about 12 m. and it weighed 20 tons. At present the African elephant is the largest terrestrial mammal. It weighs 6 tons.

The Brachiosaurus is considered to be the heaviest of all prehistoric animals. It weighed around 78 tons—about the weight of 13 African elephants!

The dodo was once commonly found in Mauritius. It was a heavy, large bird weighing 30 kg. and walked very slowly. Due to this, it was caught and killed very easily leading to its extinction at around the end of the 18th century.

Study of corals which lived 300 million years ago has revealed that during that time there were 400 days in a year. In a coral, a day's growth is marked by a distinct ring. The rings on the prehistoric corals revealed this surprising fact.

There are about 30,000 species of fish known to scientists, of them about 2,300 are of the fresh water species.

The King Cobra is the only snake to build a nest. It scrapes together clay and leaves and makes a nest about half a metre in height.

The king cobra is the longest venomous snake in the world. It grows to a length of 9 to 10 m.

The male snake uses the sense of smell to search for female snake for breeding purposes.

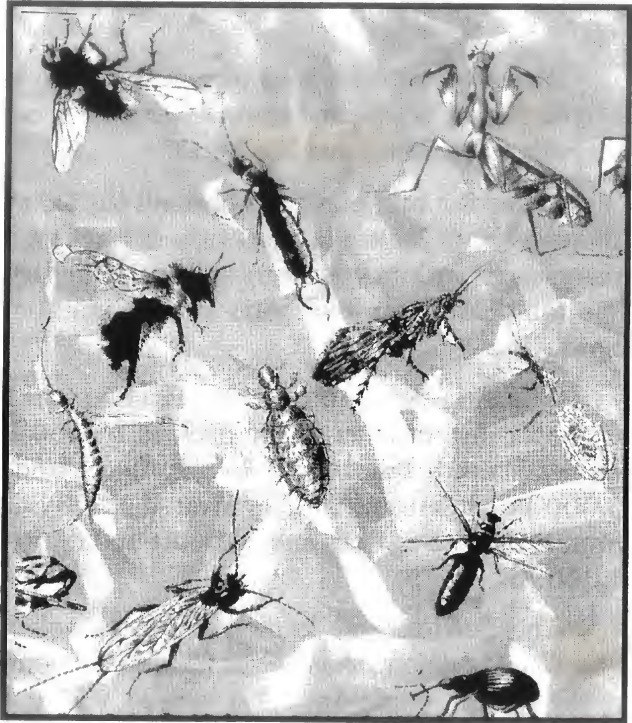
The female tropical stick insect is the longest insect in the world. It measures around 330 mm.

The queen termite is considered to lead the longest life-span in the insect world. It can live up to 50 years.

The male cicadas are said to be the loudest of all insects. They can produce sounds that can be detected at more than a quarter of a mile away.

The largest living bird is the ostrich, a flightless bird. The heaviest flying bird is the Kori bustard which weighs about 15 kg.

The hummingbird has the highest energy consumption per unit of weight. The average man uses about 3,500 calories in a day. If the hummingbird was the size of a man it would use 155,000 calories!



Insects

The flightless rail is the smallest of flightless birds and is the size of a newly hatched chicken. It is an inhabitant of Inaccessible Island in the South Atlantic Ocean.

The willow warbler is an unusual bird as it moults twice a year.

The heaviest bird ever to have lived on our earth was the Elephant bird. It weighed about 450 kg. They have become extinct recently. They inhabited Madagascar.

When the first explorers brought the skin of the duck-billed platypus from Australia, scientists did not take it seriously. The platypus, as we know, is a very strange, mixed up, peculiar animal. We can't blame the zoologists of that time for thinking it was a hoax.

The dog was one of the first animals to have been domesticated by man as far back as 10,000 BC. The goat was domesticated around 8,000 BC., cattle around 5,500 BC., sheep 5,000 BC., horse and donkey around 3,000 BC., cat and chicken around 2,000 BC., duck and goose around 1,500 BC. and the rabbit 1,000 AD.

The flatfish, also known as Moses soles, secrete a milky substance to defend themselves from their enemies. This secretion is the poison, pardoxin and is very lethal. Just one part of it in 5,000 parts of sea water is enough to kill small fish and molluscs. It even causes paralysis in fish like the shark.